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EXAMINER

MOORE, KARLA A

ART UNIT PAPER NUMBER

1763

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/913,986

Applicant(s)

DRESS ET AL.

Examiner

Karla Moore

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-39 and 43-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-32, 35-39, 43-54 and 56 is/are rejected.
- 7) ☒ Claim(s) 33, 34, 55 and 57 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 30 (the second dependent one) been renumbered 31.

Misnumbered claim 31 been renumbered 32.

Misnumbered claim 32 been renumbered 33.

Misnumbered claim 33 been renumbered 34.

Misnumbered claim 34 been renumbered 35.

Misnumbered claim 35 been renumbered 36.

Misnumbered claim 36 been renumbered 37.

Misnumbered claim 37 been renumbered 38.

Misnumbered claim 38 been renumbered 39.

Misnumbered claim 39 been renumbered 40.

Regarding these claims, Applicant should make appropriate corrections in next correspondence.

49. Claim "renumbered 40" is objected to because of the following informalities: The limitation has already been incorporated into independent claim 30. The claim was considered cancelled in this action. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims **30-31, 39, 43-54 and 56** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,004,622 to Yen et al. in view of U.S. Patent No. 4,655,162 to Kameyama, U.S. Patent No. 6,220,771 to Tung et al., and U.S. Patent No. 6,033,135 to An et al.

3. Yen et al. disclose an apparatus for coating substrates comprising: a substrate holder (51) for holding thereon a substrate; a means for rotating said substrate holder (54); and a cover (59) that is securable to said substrate holder (column 6, rows 29-34), such that said cover is freely rotatable therewith (column 6, rows 21-23), wherein said cover together with said substrate holder, are adapted to form a sealed chamber for receiving the substrate.

4. However, Yen et al. fail to teach the holder holding thereon a substrate in such a way that a surface of said substrate that is to be coated is exposed and is directed downwardly.

5. Kameyama teach a processed face of substrate that is positioned downwards provides the advantage of not being susceptible to dust contamination (column 2, rows 41-44).

6. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a downwards facing substrate in Yen et al. in order to provide the substrate with the advantage of not being susceptible to dust contamination as taught by Kameyama.

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7. Yen et al. and Kameyama et al. disclose the invention substantially as claimed and as described above.

8. However, Yen et al. and Kameyama fail to explicitly disclose a single means for rotating both said substrate holder and said cover.

9. Tung et al. teach rotating a cover and substrate holder in synchronization and with a single means (motor, 50) for the purpose of avoiding static electricity between the two structures (column 3, rows 26-33).

10. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a single means for rotating the cover and substrate holder in Yen et al. and Kameyama in order to rotate the structures in synchronization and avoid static electricity between the two structures as taught by Tung et al.

11. Yen et al., Kameyama, and Tung et al. disclose the invention substantially as claimed and as described above.

11. However, Yen et al., Kameyama, and Tung et al. fail to teach a notch provided in an outer region of a portion of said cover that defines said chamber, wherein the notch tapers radially outwardly and is inclined on a side thereof that faces said substrate holder.

12. An et al. teach the use of a notch/groove, tapered outwardly and inclined on a side thereof that faces said substrate holder, provided in an outer region of a portion of said cover that defines said chamber for the purpose of guiding byproducts through a discharge opening and into a discharge line (column 7, rows 12-16).

12. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a notch/groove in provided in an outer region of a portion of said cover that defines said chamber in Yen et al., Kameyama, and Tung et al. in order to guide byproducts through a discharge opening and into a discharge line as taught by An et al.

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13. With respect to claim 39, Yen et al. disclose said cover is symmetrical relative to a central axis C thereof, which runs vertically through the cover.
14. With respect to claim 43, Yen et al. disclose said cover is symmetrical relative to a plane B thereof, which runs vertically through the cover.
13. With respect to claim 44, Examiner is using a definition provided by Webster's Dictionary, where "turn" is defined as to move around an axis or center. In Yen et al. a device (57) is provided for turning said cover.
14. With respect to claim 45, Yen et al. a receiver (58) is provided for supporting said cover.
15. With respect to claim 46, a device (58) is provided for raising lowering said cover in Yen et al.
16. With respect to claim 54, Yen et al. teach that after rotating the substrate, the securement of said cover is released independent of holding the substrate.
17. With respect to claims 31 and 52-53, Yen et al., Kameyama and Tung et al. fail to disclose a holding mechanism on said substrate holder for holding the substrate by means of vacuum.
18. An et al. teach the use of vacuum holding for the purpose of adsorbing and fixing a substrate to a spin chuck (column 1, rows 35-37).
19. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided vacuum holding means in Yen et al., Kameyama and Tung et al. in order to adsorb and fix a substrate to a spin chuck as taught by An et al.
20. With respect to claim 53, In Yen et al. the cover and substrate holder are automatically centered relative to one another prior to holding or securement, as they are mounted centered (see Figure 3).
21. With respect to claims 47-50 and 56, Yen et al., Kameyama and Tung et al. further fail to teach a rinsing and/or drying nozzle (93) that is part of a receiver (40) and provided for said cover so as to be directed towards at least one of said cover and said notch.
22. An et al. teach the use of a rinsing and/or drying nozzle supplied with rinsing fluid for a cover for the purpose of blowing out solution remaining in a cover (column 7, row 66-column 8, row 11).

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23. It would have obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a rinsing and/or drying device for the cover in Yen et al., Kameyama and Tung et al. in order to blow out solution remaining in the cover as taught by An et al.

25. With respect to claim 50, which is drawn to the composition of the rinsing fluid, the courts have ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim. Ex Parte Thibault, 154 USPQ 666, 667 (Bd. App. 1969).

41. Claims **32 and 35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yen et al., Kameyama, Tung et al. and An et al. as applied to claims 30-31, 39, 43-54 and 56 above, and further in view of U.S. Patent No. 6,156,125 to Harada et al.

27. An et al. discloses the invention substantially as claimed and as described above. The Yen et al. disclosure includes the step of automatically centering said cover and said substrate holder relative to one another prior to holding or securement (see Figure 3) as recited in claim 53.

28. However, Yen et al., Kameyama, Tung et al. and An et al. fail to teach a holding mechanism provided on said substrate holder for holding said cover by means of vacuum.

29. Harada et al. disclose a holding mechanism (Figure 5, 75; column 5, rows 40-50) provided on said substrate holder (45, 60) for holding said cover means (31) by vacuum and at least one sealing means (80,81) for the purpose of firmly putting together the cover and the holder, which negates the need for the clamp and leads to a downsizing of the apparatus (column 6, rows 49-56).

30. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a vacuum sealing holding mechanism and at least one sealing means in Yen et al., Kameyama, Tung et al. and An et al. in order to firmly put together the holder and cover as taught by Harada et al.

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31. Claim **36** is rejected under 35 U.S.C. 103(a) as being unpatentable over Yen et al., Kameyama, Tung et al. and An et al. as applied to claims 30-31, 39, 43-54 and 56 above, and further in view of U.S. Patent No. 5,188,50 to Tomita et al.

32. Yen et al., Kameyama, Tung et al. and An et al. disclose the invention substantially as claimed and as described above.

33. However, Yen et al., Kameyama, Tung et al. and An et al. fail to teach said substrate holder provided with a recess for an at least partial accommodation of the substrate.

34. Tomita et al. disclose a substrate holder provided with a recess for the purpose receiving wafers (abstract).

35. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided recess in Yen et al., Kameyama, Tung et al. and An et al. in order to receive a wafer as taught by Tomita et al.

41. Claims **37 and 38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yen et al., Kameyama, Tung et al. and An et al. as applied to claim 30-31, 39, 43-54 and 56 above, and further in view of U.S. Patent No. 5,656,082 to Takatsuki et al.

42. Yen et al., Kameyama, Tung et al. and An et al. disclose the invention substantially as claimed and as described above.

43. However, the prior art fails to teach a centering mechanism, in the form of at least one slanted centering portion on at least one of said substrate holder and said cover, for a mutual centering of said cover and said substrate holder.

44. Takatsuki et al. disclose an apparatus for coating substrates in Figures 3 and 4, comprising a slanted centering portion (28b, 29a or 33d) for a mutual centering of said cover (30 and said substrate holder wherein the disclosed configuration is used for preventing the cover from striking the holder, thereby eliminating vibration of parts and the formation of contaminants (column 9, rows 59-62; column 10, rows 24-32, 65-67; column 11, rows 1-13).

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45. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided as slanted centering portion in Yen et al., Kameyama, Tung et al. and An et al. in order to prevent the cover from striking the holder, thereby eliminating the vibration of parts and formation of contaminants as taught by Takatsuki et al.

Allowable Subject Matter

46. Claims 33-34, 55 and 57 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

47. The prior art fails to teach or fairly suggest a substrate coating apparatus as claimed in claims 33 and 34 where holding mechanisms for a substrate and a cover are connected to a common vacuum source **or** are adapted to be controlled independently. None of the prior art teaches both in a single apparatus.

48. Additionally, the prior art fails to teach a method which includes: during said step of rotating said substrate a side of said cover that faces away from the substrate is rinsed and/or dried **or** including the step of turning said cover between successive ones of said rotating steps.

Response to Arguments

49. Applicant's arguments with respect to claims 30-39 and 43-57 have been considered but are moot in view of the new ground(s) of rejection. New art (Tung et al.) has been cited to address the newly added limitation of "a single means for rotating both said substrate holder and said cover".

50. With respect to Applicant's arguments directed toward the radially outwardly tapering notch, which Examiner finds that An et al. fairly teaches, the arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

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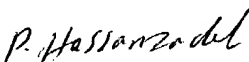
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571.272.1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

km
5 April 2004


Parviz Hassanzadeh
Primary Examiner
Art Unit 1763